

SOME NOTES ON WASPS OF THE SUBFAMILY NYSSONINAE, WITH DESCRIPTIONS OF NEW SPECIES.

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This paper contains, besides the descriptions of a few new species, notes on some of the genera of the wasps of the subfamily Nyssoninae. In the definition of the subfamily the characterization given in the classification presented in the Hymenoptera of Connecticut¹ has been followed. The treatment here suggested differs, however, from that published in 1916 in that it places the Spheciini in the subfamily Nyssoninae. The thoracic characters of this group, as well as the venation, indicate that the genus *Sphecius* is more closely allied to other members of the subfamily Nyssoninae than to those of the subfamily Stizinae, where it was placed in the Connecticut Hymenoptera. Why this error in the placing of the genus *Sphecius* was made is hard to explain, but on the face of it one would be justified in saying the author neglected to study the insect and just blindly followed previous "systems."

In some few members of this subfamily the defining suture or carina of the prepectus is feeble, and while it is impossible to say that the use of this character will be entirely reliable, the groupings obtained by it are on the whole natural and deserving of further study. In *Ammatomus* Spinola the prepectus is practically wanting yet it is evidently a member of the tribe Gorytini. In *Trichiogorytes* Rohwer the dorsal part of the prepectal suture is obliterated and because of the presence of a suture below the tubercle it seems to be present between the tubercle and tegula. The rest of the body is typically that of the tribe Gorytini, where it undoubtedly belongs.

Besides the character of the prepectus members of this subfamily have the following characters in common: Basal vein joining the subcosta close to the stigma (not its length or more basal as in the Bembecidae); basal lobe of the hind wings small; middle tibia with two calcaria; intermediate coxae well separated.

¹ Bull. 22, Conn. Geol. and Nat. Hist. Survey, 1916, p. 653.

Key to tribes of subfamily Nyssoninae.

1. Mesopleura without a dorsal plate; propodeum with its dorsal angles dentate; second cubital cell petiolate (or rarely wanting by absence of first intercubitus); stigma small.....Nyssonini.
Mesopleura with a dorsal plate (poorly defined in *Ammatomus* and present only posteriorly in *Sphecius*); dorsal angles of propodeum not dentate.....2.
2. Pronotum long, subequal in length with the scutellum; suture between the meso- and meta-pleura angulate so the metapleura is wider above; second cubital cell periolate; stigma large.....Alysonini.
Pronotum short, normal; suture between the meso- and meta-pleura straight so that part of the metapleura is nearly parallel sided; second cubital cell sessile...3.
3. Stigma very small; no suture from below tegula to prepectus; sternauli wanting.....Spheciini.
Stigma large, well developed.....4.
4. Sternauli well defined.....Hoplisini.
Sternauli wanting.....Gorytini.

Tribe NYSSONINI.

Genus NYSSON Latreille.

For the time being, and until the species from other regions can be studied, it seems best to consider the various North American groups of Nyssonini as subgenera. That this will be the final or more logical arrangement is, however, to be doubted, because the differences between *Zanysson* and *Nysson* are of greater importance than the differences between *Nysson* and *Brachystegus*. The subgenus *Foxia* is also distinctly limited and may be a genus.

Key to the North American Subgenera of Nysson.

1. Metanotum bilobed; hind tibiae serrate on their outer margin; cubitella arising well beyond end of anallen cell; apical tergite of male usually with four or more teeth.....Zanysson, new subgenus.
Metanotum not bilobed.....2.
2. Hind tibiae serrate on their outer margins; first intercubitus wanting; both recur-rents joining the first cubical cell.....Metanysson Ashmead.
Hind tibiae not serrate on their outer margins, at most spinose.....3.
3. Second recurrent joining the third cubital cell; sides of apical tergites armed with spinelike protuberances; cubitella arising well beyond the end of anallen cell.....Foxia Ashmead.
Both recur-rents joining the second cubital cell; apical tergites without spinelike protuberances.....4.
4. Cubitella arising before or nearly interstitial with nervellus....Nysson Latreille.
Cubitella arising far beyond nervellus.....5.
5. Third intercubitus present.....Brachystegus A. Costa.
Third intercubitus wanting.....Hyponysson Cresson.

ZANYSSON, new subgenus.

Paranysson CRESSON, Trans. Amer. Ent. Soc., vol. 9, 1882, p. 273.—ASHMEAD, Can. Ent., vol. 31, 1899, p. 326 (not Guérin 1844 or Turner 1914).

Genotype.—*Nysson texanus* Cresson.

According to Turner² both Cresson and Ashmead were wrong in placing the North American species of *Nysson* which have the meta-

² Ann. Mag. Nat. Hist., ser. 8, vol. 14, 1914, p. 338.

notum bilobed in the genus *Paranysson* Guérin. Turner considers Guérin's genus to be the same as *Heliorycles* Smith and makes it the type genus of a subfamily containing *Zoyphium* Kohl, *Sericophorus* Smith, and *Sphodrotus* Kohl. The subfamily Paranyssoninae is not closely allied to *Nysson*, and it is evident that the group of North American species which Cresson assigned to *Paranysson* needs a new name. As none of the synonyms of *Nysson* are available, I propose the name *Zanysson* for *Paranysson* Cresson, not Guérin.

In the bilobed metanotum this subgenus differs from all other groups of *Nysson*, and it may later be desirable to consider the group of generic value. The male of *Metanysson* has not been described, but from the other North American³ groups the male of *Zanysson* can easily be distinguished by the greater number of teeth on the apical tergite. The venation of *Zanysson* is the same as *Brachystegus*.

Key to North American species of subgenus Zanysson.

Besides the species here treated there are in the National Collection males, which appear to represent three other species, but inasmuch as they are not associated with females and there is some doubt as to the value of the number of teeth on the apical tergite it seems best to leave them undescribed until more material is available.

- 1. Legs black *fuscipes* (Cresson).
 Legs largely ferruginous..... 2.
- 2. Males..... 3.
 Females..... 5.
- 3. Third antennal joint but little shorter than the fourth; apical tergite very coarsely sculptured as is also the last; median teeth of apical tergite large and close to the lateral ones; fourth tergite with a yellow spot..... *aureobalteatus* (Cameron).
 Third antennal joint not more than half as long as fourth..... 4.
- 4. Apical tergite with four apical teeth; posterior face of the propodeum with the median carinae complete, well defined..... *texanus* (Cresson).
 Apical tergite with five apical teeth; posterior face of the propodeum with the median carinae obsolete below *plesia*, new species.
- 5. Pygidium distinctly bipunctate, large pits and smaller punctures; dorsal aspect of propodeum with a distinct inclosure; third antennal joint less than half as long as fourth *plesia*, new species.
 Pygidium nearly uniformly striato-punctate (punctures confluent forming ridges) but occasionally there may be a few pits at the base; third antennal joint more than half as long as the fourth..... *texanus* (Cresson).

NYSSON (ZANYSSON) FUSCIPES (Cresson).

This species is confined to the western coast states. The United States National Collection contains two males, one from the Fox collection, the other collected by J. R. Horton on *Helianthus* at Lindsay, California, August 29, 1911.

³ The Cuban *armatus* Cresson has only two teeth on the apical tergite.

NYSSON (ZANYSSON) AUREOBALTEATUS (Cameron).

Nysson aureobalteatus CAMERON, Trans. Amer. Ent. Soc., vol. 27, 1901, p. 313.

The National Collection contains two males, one collected at Tucson, Arizona, by F. H. Snow, the other from Paris, Texas, collected July 11, 1904, by F. C. Bishopp.

NYSSON (ZANYSSON) TEXANUS (Cresson).

Paratype.—Cat. No. 1713, U.S.N.M. One of each sex.

Besides the above-mentioned paratypes the National Collection contains other Texas specimens from the Belfrage collection and a male from St. Louis, Missouri, collected by Phil Rau under his number 2456.

NYSSON (ZANYSSON) PLESIA, new species.

Closely allied to *texanus* but may be distinguished by the characters given in the above key.

Female.—Length, 6 mm. Anterior margin of clypeus with a broad, nearly truncate, low process, which has sharp lateral angles; median ridge between bases of antennae sharp, rather prominent; front with separate, distinct punctures on a granular surface; tubercles between lateral ocelli low, elongate, well separated; antenna slightly thicker apically, the third joint not half as long as fourth, fourth and fifth subequal, apical joint obtusely pointed and distinctly longer than the preceding; dorsal surface of pronotum quadrangular, with a small, acute tooth at the anterior angles; scutum impressed medianly, with large, close punctures; scutellum with lateral margins reflexed, the surface more coarsely sculptured than the scutum; dorsal aspect of propodeum with a more or less distinct inclosure set off by a foveolate furrow, the inclosure with strong rugae; posterior aspect of propodeum with the median area present but not sharply defined, V-shaped in outline, lateral median areas rugose; tergites with distinct separate punctures, closer and larger on anterior ones; pygidium narrowly rounded apically, its surface bipunctate; sternites with large, distinct, separate punctures. Black; mandibles and scape beneath piceous; legs below coxae rufous; first three tergites with yellow spots laterally; body clothed with slightly golden pile, which is especially dense on the face, pronotum, propodeum and base of first tergite and forms a narrow shining band on apical margins of all tergites; wings dusky; venation dark brown.

Male.—Length, 5.5 mm. Median carinae of posterior face of propodeum obsolete, the surface without coarse sculpture; apical tergite with five teeth, the median one the shorter.

Type locality.—Louisiana.

Type.—Cat. No. 23511, U.S.N.M.

Described from two females (one type) and one male (allotype) from Louisiana under C. F. Baker number 2392, and from a female

paratype (c) from St. Louis, Missouri, collected by Phil Rau and under his number 2391; and from a female paratype (d) from Utica, Mississippi.

NYSSON (FOXIA) SECUNDA, new species.

Closely allied to *pacifica*, but differs in being smaller, in having the abdomen entirely rufous and in the slightly separate punctures of the first two tergites.

Male.—Length, 5.5 mm. Head coarsely, closely punctured; ocelli in a low triangle and without tubercles between the lateral pair; postocellar line distinctly longer than the ocellocular line; third antennal joint slightly longer than the fourth, the apical joint rounded apically and but little longer than the preceding; pronotum coarsely punctured, the lateral anterior dorsal angles rounded; mesoscutum very coarsely punctured, with the punctures confluent in some places; scutellum not margined laterally, sculptured similarly to scutum; dorsal median part of propodeum coarsely reticulate; lateral angles with short, acute teeth; posterior face of propodeum coarsely coriaceous, with two median carinae which converge but do not meet ventrally; abdomen coarsely punctured on a granular surface, anteriorly the punctures are separated by a distance about equal to their width, but on the apical segments they become contiguous; lateral spines on tergites curved, broad at base; spines on apical tergite small. Black; body, especially the head and thorax with dense silvery pile; abdomen rufous with a very obscure yellowish spot on lateral apical margin of first tergite, narrow apical margin of all the tergites with a silvery hair band; legs black, except the posterior pair which beyond coxae are rufous; wings hyaline, slightly dusky apically; venation black.

Type locality.—Claremont, California.

Type.—Cat. No. 23456, U.S.N.M.

Described from one male collected by C. F. Baker.

NYSSON (NYSSON) AURINOTUS Say.

A female from Milwaukee, Wisconsin, agrees well with the original description and also with the description given by Handlirsch. There seems to be but little doubt that this represents Say's species, and while it is allied to *aequalis* Patton, it may be separated from that species by the abundant golden pile at the base of the first tergite; and the black scutellum and pronotum. The pronotum is black but densely covered with golden pile, which Say described as follows: "* * * collar with an obscure golden margin, terminating in a spot."

NYSSON (NYSSON) INTERMEDIUS (Viereck).

The National Collection contains three males and one female of this species. Two males and the female come from San Bernardino County, California (collected by Coquillett), and the other male from Mesilla

Park, New Mexico, collected on *Chilopsis* June 9, 1898, by T. D. A. Cockerell.

NYSSON (NYSSON) SPHECODOIDES Bradley.

A female, which agrees well with the original description of the male, was collected in the mountains near Claremont, California, by C. F. Baker, and is now in the National Collection.

NYSSON (NYSSON) MARLATTI, new species.

In habitus and general appearance like *aurinotus* Say, but the scutellum is not margined laterally.

Female.—Length, 7 mm. Anterior margin of clypeus narrowly depressed, nearly truncate, not dentate; front and vertex with large, distinct, close punctures; no tubercles between the ocelli; frontal carina obsolete; antenna slightly thickening apically, the third joint slightly longer than the fourth, the apical joint distinctly longer than the preceding, obtusely pointed apically; lateral angles of pronotum rounded, the surface sculptured like the scutum; scutum with a median, longitudinal impression anteriorly, the surface with large, distinct, close punctures and with small, inconspicuous punctures in the interspaces; mesepisternum coarsely punctato-reticulate; scutellum not margined laterally, coarsely rugoso-punctate; dorsal, basal middle of propodeum with irregular raised lines, the spines long, rather stout; posterior face of propodeum with a median carina ventrally, the lateral carinae complete, strong, the area between irregularly reticulate; nervellus post-furcal by its width; abdomen with large, distinct punctures which are usually separated by two or three times their width, the punctures of the preultimate segment coarser and closer; pygidium well defined, broad, narrowly rounded apically, the surface coarsely, closely, irregularly punctured. Black, the head and thorax with slightly golden pile, which is especially dense on the front, dorsal margin of pronotum and dorsal lateral part of propodeum (but not on first tergite); legs below coxae, first tergite and second sternite rufous; first four tergites with elongate yellow spots; wings subhyaline, venation black.

Type locality.—Neuecest, Texas.

Type.—Cat. No. 23512, U.S.N.M.

Described from one female collected April 28, 1896, by C. L. Marlatt, for whom the species is named.

NYSSON (NYSSON) MINIMUS, new species.

Allied to *lateralis* Packard and *fidelis* Cresson, but is smaller and differs in details of punctuation. It can hardly be the female of *simplicornis* Fox as the sculpture of the abdomen is coarser, the sculpture of the mesoscutum is different, and there is no marked difference in sculpture between the scutum and mesopleurae.

Female.—Length, 4.5 mm. Anterior margin of the clypeus depressed, truncate, the surface with distinct, separate, small punctures;

frontal carina fine, incomplete; front and vertex shining, with distinct punctures which are separated from each other by about their diameter; no tubercles between the ocelli; antenna stout, the third and fourth joints subequal, apical joint blunt, distinctly longer than the eleventh but not much longer than the tenth; anterior lateral angles of pronotum rounded; mesoscutum with a faint median, longitudinal depression anteriorly, the surface with rather coarse, close punctures which are often confluent and form what at first glance appears as a coriaceous surface; mesepisternum sculptured similar to the scutum but there is a tendency to irregular reticulations; scutellum not margined laterally, sculptured similar to the scutum; propodeum dorsally with strong, rather regular rugae; the propodeal spines small, sharp; posterior face of propodeum without carinae, coarsely reticulate; nervellus interstitial; abdomen shining, the two basal tergites with rather large, close (sometimes confluent) punctures, apical tergites more sparsely punctured; pygidium truncate apically, with large, irregular punctures. Black with rather dense, silvery pile which on the clypeus almost hides the sculpture; mandibles with an obscure yellowish spot medianly; first two tergites with small, lateral yellow spots; wings dusky hyaline, venation dark brown.

Type locality.—St. Louis, Missouri.

Type.—Cat. No. 23153, U.S.N.M.

Described from one female collected June 13, 1918, by Phil Rau and under his number 3535.

NYSSON (BRACHYSTEGUS) FOXII, new species.

In Bradley's key ⁴ runs to *mellipes* but may readily be distinguished from that and similar species by the absence of tubercles between the ocelli, larger size, and continuous bands on first tergites.

Male.—Length, 8.5 mm. Apical portion of clypeus with large punctures; head with rather large, separate punctures and with smaller punctures in the interspaces; ocelli in a low triangle; the postocellar line subequal with the ocellocular line; no tubercles between the ocelli; antenna short, not reaching the tegula, stout, thickening apically, the third joint a very little longer than the fourth, apical joint somewhat longer than the preceding, not curved, obliquely truncate apically; pronotum rounded, not angulate or acute laterally; mesoscutum with large, sometimes contiguous punctures on a finely punctured surface; scutellum sharply margined laterally, very coarsely striato-punctate; basal dorsal area of propodeum with longitudinal ridges, the three median ones being better defined and parallel; the posterior face of propodeum with four carinae and with irregular transverse ridges; abdomen with distinct, separate (on three basal

⁴ Trans. Amer. Ent. Soc., vol. 46, 1920, p. 122.

tergites separated by twice their width) punctures, which become closer on the apical tergites, so on the terminal one they are contiguous; apical segment truncate, with sharp, rather short spines laterally. Black; body with short, appressed silvery pile which is especially dense on head, propodeum and anterior face of first tergite; mandibles, scape, pedicellum, basal four joints of flagellum beneath, and tegulae, dark rufous; legs, beyond coxae, clear rufous; dorsal margin of pronotum, anterior margin of scutellum, broad apical bands on first two tergites and lateral spots on third and fourth, yellow; wings dusky hyaline, venation blackish.

Type locality.—Granjeno (about 10 miles west of Santa Rosa) Texas.

Type.—Cat. No. 23458, U.S.N.M.

Described from a single male collected May 20, 1895, by C. H. T. Townsend.

Dedicated to W. J. Fox in recognition of his useful work on the wasps of this genus.

NYSSON (*BRACHYSTEGUS*) *BARBERI*, new species.

Allied to *Nysson* (*Brachystegus*) *gagates* Bradley, but differs from the description in the truncate apical joint of the antenna, different sculpture of mesonotum and abdomen and presence of tubercles between the ocelli.

Male.—Length, 6 mm. Head with rather large, close punctures which are closer on the front, on the vertex in the interspaces are smaller, somewhat inconspicuous punctures; a low, elongate tubercle on inner margins of each lateral ocellus; third and fourth antennal joints subequal, the apical joint distinctly longer than the preceding and obliquely truncate; dorsal margin of pronotum rectangular, the lateral anterior angles subacute; mesoscutum with coarse, nearly confluent punctures, and with smaller punctures in the interspaces; scutellum not margined, punctured like the scutum but more coarsely so; dorsal surface of propodeum with regular radiating striae; the lateral angles acute but without a prominent spinelike tooth; posterior face of the propodeum with prominent median carinae, and with transverse rugae; abdomen with distinct, rather large punctures which on the two basal segments are separated by about twice their width but on the apical segments become coarser and contiguous so the two apical segments are striato-punctate; second sternite punctured like the tergite except the punctures are more widely separated. Black, rather densely clothed with silvery pile; first three tergites with elongate, lateral, pale yellow spots on their apical margins, those on the first the largest and separated by about their length; wings dusky hyaline, slightly clouded along anterior margin of radial cell, venation blackish.

Type locality.—Bair's Ranch, Redwood Creek, Humboldt County, California.

Type.—Cat. No. 23459, U.S.N.M.

Described from one male collected June 12 by H. S. Barber, for whom the species is named.

NYSSON (BRACHYSTEGUS) OPULENTUS, var. DAKOTENSIS, new variety.

Male.—Length, 7.5 mm. Differs from the typical form in having the markings more distinctly yellow, in the apical band on the first two tergites being complete and in having a transverse yellow spot on the first tergite before the apical band. The punctures on the first two tergites are also a trifle larger.

Type locality.—New England, North Dakota.

Type.—Cat. No. 23457, U.S.N.M.

Described from a single male collected by C. N. Ainslie.

Tribe HOPLISINI.

The definition of this tribe is changed from that given in the Connecticut Hymenoptera only by the omission of the phrase, "mesepisternum without an oblique suture from below tegula to prepectal carina." This change permits the inclusion of the genus *Arpactus* Jurine and certain species of *Hoplisoides* which would otherwise be excluded.

At least in some cases the convergence of the eyes toward the clypeus is a secondary sexual character.

Key to the North American Genera.

1. Nervellus straight, antifurcal; mesepisternum with an oblique suture from below tegula to the prepectal carina.....*Arpactus* Jurine (= *Dienoplus* Fox).
- Nervellus long and strongly curved, interstitial or postfurcal. *Hoplisus* Lepeletier.

Genus HOPLISUS Lepeletier.

Of the three subgeneric groups tabulated below it seems probable that more material will make it difficult to satisfactorily separate *Hoplisus* in the restricted sense and *Hoplisoides*, but the smooth propodeum makes it easy to recognize species belonging to *Pseudoplisus*.

Key to North American subgenera of Hoplisus.

1. Propodeum smooth and shining, practically without sculpture; propodial inclosure well defined; nervellus distinctly postfurcal.....*Pseudoplisus* Ashmead.
- Propodeum sculptured, the inclosure usually striate.....2.
2. Propodeal inclosure well defined; nervellus postfurcal.....*Hoplisus* Lepeletier.
- Propodeal inclosure not or scarcely defined; nervellus interstitial,
Hoplisoides Gribodo.

Tribe GORYTINI.

Key to genera in the National Collection.

1. Abdomen sessile, the first tergite broad and shorter, its apex nearly as wide as the base of the second tergite.....2.
- Abdomen subpetiolate, the first tergite longer and its apical width much less than the basal width of the second tergite.....6.
2. First recurrent nearly or quite interstitial with the first intercubitus and not causing the cubitus to be angled; second recurrent interstitial or nearly with the second intercubitus; nervellus nearly perpendicular and strongly antefurcal; propodeal inclosure well defined.....*Clytemnestra* Spinola.
Both recurrents received well within the second cubital cell and pulling the cubitus down so it is angled.....3.
3. Nervellus interstitial.....*Arigorytes* Rohwer.
Nervellus antefurcal.....4.
Nervellus postfurcal.....*Ceratostizus*, new genus.
4. Anterior tarsi of female with a comb; inner margins of eyes in female subparallel; body with much appressed pile.....*Trichigorytes* Rohwer.
Anterior tarsi of female without a comb; inner margins of eyes not subparallel; body without appressed pile.....5.
5. First tergite without a transverse depression before apex; body black and yellow.....*Gorytes* Latreille.
First tergite with a transverse depression before apex; body black.
Gorytes, subgenus, *Argogorites* Ashmead.
6. Nervellus perpendicular and antifurcal; recurrents interstitial or nearly with the intercubiti and not causing the cubitus to be angled; inner margins of the eyes strongly converging below.....*Paramellinus* Rohwer.⁵
Nervellus strongly reclivous; recurrents well within the second cubital cell and causing the cubitus to be pulled down.....7.
7. Inner margins of the eyes subparallel.....8.
Inner margins of the eyes strongly converging below.....9.
8. Nervellus slightly antifurcal.....*Mellinogastra* Ashmead.
Nervellus interstitial.....*Mellinogastra*, subgenus, *Hypomellinus* Ashmead.
9. Nervellus antifurcal; prepectus present; mesopleura with a distinct dorsal plate.
Hapalomellinus Ashmead
Nervellus postfurcal; prepectus poorly defined or obsolete; mesopleura without a distinct dorsal plate.....*Ammatomus* Spinola (= *Magalomma* Smith, Ashmead).

CERATOSTIZUS, new genus.

Genotype.—*Gorytes moneduloides* Packard.

Eyes large, occupying most of the side of the head, strongly converging below; antennae strongly thickening apically; no suture from tegula to prepectal carina; propodeum more or less sculptured, with a well-defined inclosure; tarsal comb of female present, but not long; first tergite shorter than the second, its apical width as great as the basal width of the second; stigma well defined; both recurrents received well within the second cubital cell and drawing

⁵ Both Mickle and Bradley prefer to follow Ashmead and use the name *Euspongus* Lepeletier for this genus. I have not seen the genotype and they may be correct, but it seems doubtful inasmuch as the species, other than the genotype, which were originally assigned to the genus, do not agree with *bipunctatus*, the genotype of *Paramellinus*.

the cubitus down; nervulus postfurcal; nervellus straight, long, and postfurcal by more than half its length.

The above generic name was suggested by Ashmead but, as far as I know, never published.

CERATOSTIZUS MONEDULOIDES (Packard).

Gorytes moneduloides PACKARD, Proc. Ent. Soc. Phila., vol. 6, 1867, p. 424.—Fox, Proc. Acad. Nat. Sci. Phila., 1895, p. 523.

Gorytes belfragei CRESSON, Trans. Amer. Ent. Soc., vol. 4, 1872, p. 224.

The above synonymy was first pointed out by Handlirsch. The type of *belfragei* is in the National Collection, Cat. No. 1710.

Tribe SPHECIINI.

This tribe is represented only by the genus *Spheciis* Dahlbom in which there is no propodeal inclosure and the nervellus is strongly curved and postfurcal. In the postfurcal nervellus this genus is like *Ceratostizus* and *Ammatomus*.